

Development and testing of a *Prosopis africana* pod thresher

ABSTRACT

Prosopis africana is an under utilized tree crop with immense medicinal and industrial values. Manual threshing of the pods to extract the seeds is uneconomical, time consuming, associated with drudgery and low output capacity. A motorized *Prosopis africana* pod thresher was designed, fabricated and assessed for performance. The main components of the thresher include hopper, threshing unit, cleaning fan and the frame. The best threshing performance index of 92.55 % which comprises of 98.03 % threshing efficiency, 94.45 % cleaning efficiency, 2.36 % seed loss and 1.59 % mechanical damage index was obtained. A combination of 1200 rpm cylinder speed, 1200 rpm fan speed, 30 kg/h feed rate and 16 % wb moisture content of the pods is recommended for optimum results. The thresher has a capacity of 70 kg/h. The performance of this thresher has indicated the possibility of exploiting the full industrial potential of *Prosopis africana* pods and seeds.

Keyword: Drudgery; *Prosopis africana*; Threshing performance index